INTERMOUNTAIN STATES (R-4)[1/]

by

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CONDITIONS IN BRIEF

Bark beetles have been responsible for the greatest loss of timber resources in the Intermountain Region in recent years. This situation remained the same through the 1974 field season. Mountain pine beetle continues as the most damaging pest primarily in lodgepole pine stands throughout southern Idaho and western Wyoming. Overall, populations are declining except for some areas on the Targhee, Bridger-Teton and Sawtooth National Forests. In addition, some increases in tree killing were observed on state and private lands in south-central Idaho where, in addition to lodgepole pine, ponderosa pine is being killed. Attempts have been made to accelerate sales programs and put up special salvage sales. However, a sagging lumber economy plus overall low quality of timber involved have slowed these programs.

1/ Includes forested lands in Utah, Nevada, southern Idaho, western Wyoming, and eastern California.

Douglas-fir beetle damage remained static or dropped off in many areas of the Boise, Payette, Salmon, Challis and Sawtooth National Forests, Idaho. Increases in damage, however, were observed on portions of the Targhee National Forest. The Targhee infestations are an outgrowth of populations building up after storm damage in 1973.

The Engelmann spruce beetle on the Manti-LaSal National Forest, Utah, dropped off dramatically. Continuing efforts are being made to salvage and/or harvest infested and susceptible spruce. However, mill capacity and market conditions have precluded any direct action to date.

Defoliators continued throughout Douglas-fir and true fir stands, dropped off in ponderosa pine types and caused limited damage in a variety of coniferous and deciduous types. Western spruce budworm surveys were not completed. However, this defoliator was omnipresent in areas of Idaho and Wyoming. Pine butterfly populations dropped off to a point where no visible defoliation could be detected from the air. However, top kill, an aftermath of defoliation, was evident in localized areas. No new areas of Douglas-fir tussock moth were found. Most stands defoliated in 1973 were observed to be "greening up" or putting on new foliage. Whether or not this represents a permanent recovery remains to be seen.

A study to determine whether mountain pine beetle-killed lodgepole pine could be utilized as power poles was conducted in May 1974. Results indicated 33 percent of the trees which met external criteria were suitable for use as power poles.

No dwarf mistletoe control projects were conducted this year. Post control evaluations of 13 past projects revealed reductions in numbers of infected trees per acre of 69 percent to 90 percent.

Examination of vegetation plots near two coal-fired generation stations showed no discernible damage to vegetation by uncontrolled release of SO_2.

Preliminary sampling of subalpine fir with individual fading branches revealed Fomes annosus infected roots while a species of Cytospora was found infecting the fading branches. Three new F. annosus infection centers were found this year.

Preliminary sampling to determine whether a correlation exists between the impact of Douglas-fir dwarf mistletoe and habitat type showed there is no relationship.

Fomes applanatus was found as an active root rotter of aspen in five campgrounds.

Aspen twig and leaf blight and Rhabdocline needle cast infection levels were at a low point this year, possibly due to this being one of the driest years on record.

STATUS OF INSECTS

Mountain Pine Beetle, Dendroctonus ponderosae Hopk. Killing of lodgepole, ponderosa and Jeffrey pine by the mountain pine beetle continues throughout the Region but considerably below levels of previous years. The once damaging and widespread outbreaks in lodgepole forests of southern Idaho and western Wyoming have, with some exceptions, all but run their course. On the Targhee National Forest, tree killing continues at a high level in the Island Park area and to a lesser extent on the Moose Creek Plateau. A potentially damaging outbreak is in progress in the lower Gros Ventre River of the Bridger-Teton National Forest. Aerial surveillance of the outbreak in Grand Teton National Park and the Teton Wilderness was not possible due to heavy smoke from an uncontrolled forest fire. Widely scattered but diminishing outbreaks continue in portions of the Caribou National Forest in southern Idaho.

For several years the mountain pine beetle has attacked and killed large numbers of lodgepole pine on the Cassia Division, Sawtooth National Forest. During the 1974 aerial surveys, heavy fading was observed throughout most of the lodgepole type. This indicates increasing beetle populations which are expected to continue for at least another season. In addition, these stands are heavily infected with dwarf mistletoe. Overall, stands are of low economic value as sawtimber. Attempts have been made to salvage or sell several sales at minimum stumpage. Due to market conditions, little interest has been shown by industry. Land managers have not felt that values are sufficiently high to warrant requests for direct control action.

On the Northern Division of the Sawtooth, the mountain pine beetle remains epidemic in Warm Springs Creek and its tributaries west of Ketchum, Idaho. Also, new attack areas and expansion of old areas were recorded along the North Fork of the Big Wood River from Ketchum to Galena Summit, Idaho. The preferred host, larger d.b.h. trees, is abundant and should provide suitable host material for continued beetle activity.

Currently mountain pine beetle is infesting both lodgepole and ponderosa pine stands from McCall, Idaho, southward into Round Valley for approximately 40 air miles. Infestations started along the North Fork of the Payette River south of McCall, then progressed southward to Cascade Reservoir from 1960 to 1965. The following year new attacks were observed throughout Long Valley. Since then, new infestations have occurred south in Round Valley and killed trees can be found the entire length of both valleys.

A chronic infestation in stagnated second-growth ponderosa pine is continuing to kill trees on private lands southeast of Cascade, Idaho. Until the past two years, losses have been primarily in small d.b.h. trees. However, as these are becoming fewer in number, larger trees 10-inch d.b.h. and over are being killed. Considerable host type remains and the infestation is expected to continue for at least another year. To date, private land owners have done nothing to bring the infestation under control.

During the past two years, new fading has been detected in and around the town of McCall indicating a resurgence of activity in the old Payette River infestation.

Renewed mountain pine beetle activity is underway in northern Utah on portions of the Wasatch and Ashley National Forests. Infestations showing increasing potential and widespread damage are on the Evanston Ranger District, Wasatch National Forest, and Vernal and Flaming Gorge Ranger Districts, Ashley National Forest. In portions of the Vernal District, Ashley National Forest, efforts are now underway to salvage dead material and to retard the thrust of the infestation by strategic logging. Less serious killing of lodgepole pine continues in widely spaced outbreaks on the Uinta National Forest, also in Utah.

The once serious outbreak in ponderosa pine in Bryce Canyon National Park and the adjacent Dixie National Forest is at its lowest level in 10 years. Mixed ponderosa and lodgepole stands are still under attack on the Flaming Gorge Ranger District, Ashley National Forest, but at a reduced rate.

Widely scattered killing of lodgepole, ponderosa, and Jeffrey pine is occurring throughout the southern half of the Toiyabe National Forest, California. Heaviest activity is in the upper reaches of the East Fork of the Carson River.

Douglas-Fir Beetle, Dendroctonus pseudotsugae Hopk. Overall, Douglas- fir beetle populations remained low and fairly static throughout the Boise Zone and increased on the Targhee National Forest. Attacks continued at about the same level as recorded in 1973 in widely scattered areas throughout the Boise, Payette, Salmon, Challis, and Sawtooth National Forests.

The mature-over-mature Douglas-fir stands in a 20-mile band along the South Fork of the Payette River are incurring intolerable losses on the Boise National Forest, Idaho. Currently, helicopter sales are being considered for logging the extremely steep slopes. This type of management should, in a period of a few years, reduce the beetle impact and convert the stand to a more healthy condition.

As anticipated in 1973, killing of mature and overmature Douglas-fir by the Douglas-fir beetle increased on the Targhee National Forest, Idaho. A significant increase in the number and size of group attacks was observed on Bend Ridge, across the south slope of the Centennial Mountains and north of Palisades Reservoir. Ground data taken to determine the course of the infestation during 1974 have not yet been analyzed.

Engelmann Spruce Beetle, Dendroctonus rufipennis (Kirby). The long standing outbreak in the upper reaches of Huntington Creek, Manti-LaSal National Forest, Utah, continues to decline. Logging for salvage in a small part of the infestation is planned but momentarily stymied because of inadequate local mill capacity.

An agressive trap tree program is underway in the Deer Valley timber sale, Dixie National Forest, Utah. An attempt to evaluate the effectiveness of the program will be undertaken in 1975.

Engraver Beetles, Ips spp. In sharp contrast to the past few years, engraver beetles caused only nominal damage in 1974 to ponderosa pine throughout the Boise Zone. The 1973 lindane chemical spray program in three logging areas on the Boise Forest successfully controlled Ips populations. The increase in marketability of small-diameter pine prompted an increase in cutting in these stands of 10- to 14-inch diameter material.

There was some fear that increases in cutting might cause an upsurge in Ips activity. Evaluations made during the summer indicated that cutting followed by thinning in noncommercial size material did not cause any increases in Ips activity but rather seemed to have kept losses very low.

Contrary to the pine engraver situation in ponderosa pine, Ips beetles are taking a heavy toll of small-diameter lodgepole pine in many of the declining mountain pine beetle outbreaks. These secondary bark beetles build up to astronomical numbers in portions of some trees not occupied by the mountain pine beetle and out-compete the mountain pine beetle in others, particularly during the waning years of an outbreak. Heaviest tree loss is now occurring in portions of the Targhee and Bridger-Teton National Forests and Grand Teton National Park.

Western Spruce Budworm, Choristoneura occidentalis Freeman. Since 1964, when over two and a quarter million acres of fir forests were defoliated, Regional budworm populations have fluctuated markedly. In 1967, defoliation declined to slightly over 200,000 acres. Budworm populations, at a relatively low status during 1973, increased slightly in 1974, showed up in a few new areas, and should increase in both extent and intensity in 1975. Defoliation predictions made in 1973 for 1974 defoliation were accurate for most areas.

The full extent of budworm distribution, as evidenced by visible defoliation, is not known. The damaged needles fell early due to an unusually dry and warm summer. This obscured the normal visual symptoms of defoliation and prevented detection of the full extent of the outbreak. In addition, considerable acreage on the Payette and Challis Forests was not aerially surveyed. There is a possibility some areas of defoliation went undetected.

The relatively new infestation that has developed around McCall, Idaho, spread southward throughout the Cascade Reservoir area. Egg mass surveys near the Cascade Reservoir, West Mountain area, indicate increasing defoliation in 1975. Elsewhere in the Boise Zone, egg mass surveys indicate static to decreasing trends.

Defoliation of Douglas-fir and subalpine fir occurred in the north end of the Targhee National Forest but was not visible from the air during late August. Some discernible defoliation was observed in other areas of the Targhee and Bridger-Teton National Forests, however. No evaluation surveys were conducted in the northern Targhee infestation, but relatively heavy egg mass deposition in portions of the Bridger-Teton infestation portends moderate to heavy defoliation of some areas in 1975.

Abnormal precipitation and above-normal temperatures during June are believed to be the primary causes of high larval survival; consequently, the increase in feeding damage.

Scenic and major recreation areas such as Snow King Mountain overlooking Jackson, Wyoming, and portions of the heavily traveled Snake River Canyon will exhibit moderate to heavy defoliation in 1975.

Pilot testing of several chemicals for budworm control is tentatively planned in 1975. Region 4 will participate in this program and will use the chemical Dylox.

Douglas-Fir Tussock Moth, Orgyia pseudotsugata (McDunnough). After a rather dramatic appearance in 1973, encompassing over 11,000 acres, tussock moth damage declined to near zero in 1974, except on some 1,100 acres near Fairfield that required spraying. Application of three-fourths pound DDT per acre suppressed this population as well. The area left unsprayed because of virus levels indicated levels similar to unsprayed check areas. Chronic areas of infestation near Silver City and South Mountain, Owyhee County, Idaho, did not show any aerially visible damage. However, previously defoliated Douglas-fir stands near Delamar Mountain are showing fairly heavy mortality. Extent of damage is not known as ground surveys have not been made.

There is a very small but inconsequential population remaining in the Bonanza Boy Scout Camp area near Las Vegas, Nevada.

White Fir Needle Miner, Epinotia meritana Heinrich. The long-lasting outbreak of this needle miner in white fir, Abies concolor, in portions of the Dixie National Forest and Bryce Canyon National Park continued its slow but steady decline. Larval popultations were virtually nonexistent in 1974, but the successive years of defoliation have taken their toll. Widely scattered tree mortality and top kill have occurred in some areas, but for the most part many heavily damaged but live trees are showing signs of recuperation. The long-term impact of this infestation, as well as its recuperation potential, will be studied in 1975.

Pine Needle Scale, ~~Phenacaspis~~ Chionaspis pinifoliae (Fitch). Spraying malathion to control mosquitoes triggered a heavy but small infestation of this scale in Jeffrey pine near Genoa, Nevada.

A Sawfly, Neodiprion fulviceps (Cresson). A very localized infestation of this defoliator on ponderosa pine in Clear Creek, Fishlake National Forest, Utah, has been in progress since 1970. Although populations have been decreasing since 1972, there was nonetheless sufficient larval feeding to cause heavy defoliation of the weakened trees for the fifth consecutive year. At this time, however, no tree mortality has occurred.

A Tent Caterpillar, Malacosoma incurvum discoloratum (Neumoegen). This tent-builder caused scattered defoliation of Fremont poplar along the Fremont River in Capitol Reef National Park, Utah. Other than some unsightliness of partially defoliated trees and the silk-like tents, no significant damage occurred. Lack of sufficient numbers of newly deposited egg masses indicates only light to negligible defoliation in 1975.

Gypsy Moth, Porthetria dispar (L.). A cursory detection survey for the possible introduction of this pest in Utah was undertaken in conjunction with APHIS and the National Park Service. Pheromone baited traps were placed in selected National Park campgrounds near heavily used major highways, but no gypsy moths were found.

Fall Cankerworm, Alsophila pometaria (Harris). This insect was reported defoliating a variety of hardwoods in Corn Creek, Fishlake National Forest, and in residential areas in the Salt Lake Valley, Utah. At this time, the trend of the infestation is unknown.

STATUS OF FOREST DISEASES

Utilization Study of Mountain Pine Beetle-Killed Lodgepole Pine. In the spring of 1974 a study was undertaken to determine if lodgepole pine trees killed by the mountain pine beetle could be utilized as power distribution poles. Two questions had to be answered: (1) Do sapwood rotting fungi cause sufficient deterioration of sapwood to allow linemen's spurs to rip out of such decayed wood? (2) Do butt and heart rotting fungi cause decay and consequent weakness significant enough to prevent dead trees from being used as power poles?

Of the 154 dead pole-sized trees found on the plots, 33 percent were rated by the team of three pathologists as being of pole quality according to National Pole Standards.

Some other important findings are that every tree had serious sap-rot up to 4 to 5 feet above the stump. Moisture content at stump height was as high as 60 percent but decreased rapidly in the first 16-foot log. Beyond the 16-foot height, moisture content was very consistent (between 12 and 15 percent). Of the trees which met pole standards, approximately 10 percent were culled by decay. Subsequent reports from the pole yard indicate that about 15 percent of the dead pole quality logs delivered to the yard for peeling and treating had pockets of red rot behind sound appearing branches. These tear out during peeling. The logs are then not marketable as power poles. The power company has been quite pleased with the poles they have received.

Dwarf Mistletoe, Arceuthobium spp. The most serious disease of conifer species of the Intermountain Region continues to be dwarf mistletoe. No Forest Pest Control financed projects on National Forest land were conducted this year. Post-control evaluations of 13 previous years' projects revealed reduction in numbers of infected trees per acre ranged from 69 to 90 percent, with almost all remaining infected trees Class I (Hawksworth).

During the past several years, the Regional Ecologist, two foresters and the Regional Pathologist independently observed that Douglas-fir dwarf mistletoe impact seemed to decrease as site quality increased. Some preliminary sampling was done to determine if this relationship actually existed and if it warranted further study. Data taken systematically on various Douglas-fir habitat types revealed no apparent correlation between impact of infection and habitat type. Results were confounded by selection logging which had taken place in past years. Selection logging had left decadent trees which were overstory sources of infection resulting in infection in the tops of regeneration. Because this practice was so widespread it was impossible to obtain data from undisturbed stands. Recent personal communications from personnel of the Intermountain Forest and Range Experiment Station involved in habitat typing in Idaho stated they also could not find any correlation between Douglas-fir dwarf mistletoe impact and Douglas-fir habitat type. The habitat typing program is continuing. Data include levels of dwarf mistletoe infection by habitat type. In the future these data will be analyzed for possible dwarf mistletoe-habitat type correlations.

Air Pollution. Two generating stations went "on line" this year. Both are equipped with electrostatic precipitators which keep the fly ash emissions to a barely discernible plume. Release of SO_2 gas is unchecked. Vegetation plot examinations around both power plants revealed no damage that could be ascribed to SO_2.

Annosus Root Rot, Fomes annosus (Fr.) Cke. Preliminary sampling of subalpine fir exhibiting fading individual branches in their crowns revealed F. annosus root infection. A species of Cytospora was found apparently parasitizing the branches of such weakened trees.

Newly found infection centers in subalpine fir included one on the Mink Creek Road of the Wasatch National Forest and another on the Powder Mountain ski area near Ogden, Utah. In both of these centers the infection court appeared to be stumps created by man. Areas of dying ponderosa pine were examined on the Boise Basin Experimental Forest. Fomes annosus was found killing a sawlog-sized tree in one of them. Whether other mortality noted was caused by F. annosus could not be determined.

Applanatus Root Rot, Fomes applanatus (Pers. ex Wallr.) Gill. Examination of dying and windthrown aspen in four campgrounds along the North Fork of the Duchesne River, Uinta National Forest revealed that the roots of these trees were being rotted by the fungus Fomes applanatus. Crown symptoms were leaves less than normal size and thinning foliage. However, some windthrown trees fell without exhibiting any crown symptoms. A similar condition was found in a campground in Logan Canyon on the Logan Ranger District of the Wasatch National Forest. Further study of this problem is planned.

Aspen Twig and Leaf Blight, Marssonina populi (Lib.) Magn. Regionwide the incidence of aspen twig and leaf blight was low this year. The most probable cause for a decrease of the incidence of this disease is that this has been one of the driest growing seasons on record.

Rhabdocline Needle Cast of Douglas-Fir, Rhabdocline pseudotsugae (Syd.). The incidence of the Rhabdocline needle cast was lower this year than in previous years. No reports were received from field personnel concerned about this problem. In years when Rhabdocline flourishes, five to ten reports are usually received. It is felt that dry weather conditions during late spring restricted the infection of the new growth.

Aspen Canker, Cytospora sp. Aspen cover on the Angel Creek Campground, Wells Ranger District, Humboldt National Forest, was reported dying. A visit revealed that each tree had multiple Cytospora cankers which girdled the stem, killing the tree. The trees were growing on a very well drained site. There was much damage, caused by recreationists, to many of the stems. These wounds acted as infection courts. The prolonged drought during the growing season probably accelerated the rate of dying.

Dieback of Desert Ash. A dieback of desert ash, Fraxinus velutina, in Zion National Park was investigated. The principal problem appeared to be drought. A fungus of the genus Alternaria was isolated from leaves and twigs. Alternaria is considered a weak parasite or saprophyte on plant material. The drought conditions probably predisposed the trees to invasion by this organism. Following heavy irrigation of the trees a new flush of growth occurred in the late summer.

Unknown Deposits on Leaves of Singleleaf Ash. Specimens of singleleaf ash, Fraxinus anomala, exhibiting brown deposits on the leaves and thinning of the leaves were found in the Arches National Park. Examination revealed these deposits to be water soluble. Chemical analysis determined that saccharides were present. The deposits were probably a form of aphid honey dew.

Anthracnose of Ornamental Oak, Gnomonia veneta (Sacc. and Speg.). Gambel oak, Quercus gambelii, growing around three homes in Ogden and Farmington, Utah, were examined. The disease of the leaves was diagnosed as oak anthracnose. These trees are irrigated frequently. Unirrigated oak growing wild in the foothills were not diseased. The assumption as to why this disease occurred during a dry period is that irrigation provided moisture necessary for infection of this year's foliage. Impact upon growth caused by this organism is expected to be minor.

Ponderosa Pine Tip Dieback. A tip dieback of ponderosa pine, Pinus ponderosa, that was prevalent from southern Utah to the Uinta Mountains with lesser levels of infection on ornamental pines in northern Utah has disappeared. An unidentified black fungus has been consistently isolated from infected tips.

Dying of Pinyon Pine. Dying of pinyon pine, Pinus edulis, centered at Monticello, Utah, was reported this year. Upon examination, no obvious pathogen or insect was found. Isolation from a light brown area in the cambium of one tree extending from a root up the trunk produced a slow growing grey-white fungus, identity unknown. The area of infection extends from Monticello east approximately 35 miles into Colorado, 15 miles south and 10 miles north of Monticello, and westward to the lower slopes of the Abajo Mountains. The winter of 1972-73 was very cold, accompanied by high winds. The largest patches of mortality are on exposed points of land which extend out into the canyons. An assumption as to the cause of this condition is winter kill brought on by frozen ground and high velocity drying winds.